WHAT IS CLAIMED IS

1.   A method for identifying flaws in a part being inspected, comprising:

generating a 3-d representation of the part, the 3-d representation comprising 3-d spatial coordinates corresponding to different locations on the part;

registering the 3-d spatial coordinates with corresponding locations of a part being inspected;

generating an image of the part being inspected;

identifying a flaw in the part being inspected from the generated image;

correlating a location of the flaw to a corresponding 3-d spatial coordinate;

controlling a device to perform an operation on the part being inspected at the flaw location using information of the corresponding 3-d spatial coordinate.

2.   A method according to claim 1, further comprising:

displaying the generated image on a display device; and

receiving an indication of the location of the flaw in response to an identified location on the display device.

3.   A method according to claim 2, further comprising:

identifying a pixel location based on the identified location on the display device; and

determining the location of the flaw in the generated image based on the identified pixel location.

4.   A method according to claim 1, wherein the image is generated by one of X-ray imaging, ultrasound imaging, eddy current imaging, and infrared imaging.

5.   A method according to claim 1, further comprising:

receiving an indication of which operation the device is to perform on the part being inspected , wherein the operation performed by the device on the part being inspected corresponds to the received indication.

6. A method according to claim 5, wherein the operation is one of a marking and a repair.

7. A method according to claim 1, further comprising:

identifying an approach vector that enables the device to contact and perform the operation on the part being inspected at the flaw location without obstruction from a portion of the part being inspected; and

applying the approach vector to move the device to the flaw location without being obstructed by a portion of the part being inspected.

8. A method according to claim 7, wherein the identifying further includes:

setting an initial approach vector for the device to contact and perform the operation on the part being inspected;

determining whether any surface point of the part being inspected is present in a clearance region adjacent to the initial approach vector; and

accepting the initial approach vector as the approach vector for moving the device to the part being inspected if no surface point is present in the clearance region.

9. A method according to claim 8, wherein the initial approach vector corresponds to a surface normal from the flaw location.

10.   A method according to claim 8, wherein the identifying further includes:

adjusting the initial approach vector if at least one surface point is present in the clearance region;

determining whether any surface point of the part being inspected is present in a clearance region adjacent to the adjusted approach vector; and

accepting the adjusted approach vector as the approach vector for moving the device to the part being inspected if no surface point is present in the clearance region.

11.   A method according to claim 10, wherein the adjusted approach vector corresponds to a vector providing a clear line of sight between the flaw location and an imaging device for generating the image of the part being inspected.

12.   A method according to claim 1, further comprising:

creating a CAD representation of the part; and

transforming the CAD representation of the part to generate the 3-d representation of the part.

13.   A method according to claim 12, wherein the 3-d representation of the part is in an STL format.

14. A part analysis system for identifying flaws in a part being inspected, comprising:

a storage unit that stores a 3-d representation of the part, the 3-d representation comprising 3-d spatial coordinates corresponding to different locations on the part;

an imaging device that generates an image of a part being inspected;

a system control unit coupled to the imaging device and the storage unit, the system control unit including a processor and a memory comprising a plurality of instructions executed by the processor, the plurality of instructions configured to register the 3-d spatial coordinates with corresponding locations of the part being inspected, receive the generated

image from the imaging device, receive an indication identifying a flaw in the part being inspected, and correlate a location of the flaw to a corresponding 3-d spatial coordinate in the 3-d representation of the part;

an operation tool coupled to the system control unit that performs an operation on the part being inspected at the flaw location based on the corresponding 3-d spatial coordinate correlated by the system control unit.

15. A part analysis system according to claim 14, further comprising:

a display device that displays the generated image; and

a flaw identification unit that identifies a location of the flaw on the display device in response to a user input.

16. A part analysis system according to claim 15, wherein the memory of the system control unit further comprises instructions configured to identify a pixel location based on the identified location on the display device and determine the location of the flaw in the generated image based on the identified pixel location.

17. A part analysis system according to claim 14, wherein the imaging device is configured to generate one of an X-ray image, an ultrasound image, an eddy current image, and an infrared image.

18. A part analysis system according to claim 14, wherein the memory of the system control unit further comprises an instruction configured to receive an indication of which operation the operation tool is to perform on the part being inspected, wherein the operation performed by the operation tool on the part being inspected corresponds to the received indication.

19.   A part analysis system according to claim 18, wherein the operation is one of a marking and a repair.

20.   A part analysis system according to claim 14, wherein the memory of the system control unit further comprises instructions configured to:

identify an approach vector that enables the device to contact and perform the operation on the part being inspected at the flaw location without obstruction from a portion of the part being inspected; and

apply the approach vector to move the device to the flaw location without being obstructed by a portion of the part being inspected.

21.   A part analysis system according to claim 20, wherein the memory of the system control unit further comprises instructions configured to:

set an initial approach vector for the device to contact and perform the operation on the part being inspected;

determine whether any surface point of the part being inspected is present in a clearance region adjacent to the initial approach vector; and

accept the initial approach vector as the approach vector for moving the device to the part being inspected if no surface point is present in the clearance region.

22.   A part analysis system according to claim 21, wherein the initial approach vector corresponds to a surface normal from the flaw location.

23.   A part analysis system according to claim 21, wherein the memory of the system control unit further comprises instructions configured to:

adjusting the initial approach vector if at least one surface point is present in the clearance region;

determining whether any surface point of the part being inspected is present in a clearance region adjacent to the adjusted approach vector; and

accepting the adjusted approach vector as the approach vector for moving the device to the part being inspected if no surface point is present in the clearance region.

24.   A part analysis system according to claim 23, wherein the adjusted approach vector corresponds to a vector providing a clear line of sight between the flaw location and the imaging device.

25.   A part analysis system according to claim 14, further comprising:

a drawing unit configured to creating a CAD representation of the part, and transform the CAD representation of the part to generate the 3-d representation of the part.

26.   A part analysis system according to claim 25, wherein the 3-d representation of the part is in an STL format.